

Response
Application No. 10/781,699
Attorney Docket No. 042115

REMARKS

Claims 1 and 3 are pending in the present application. By this Amendment, claim 1 has been amended. No new matter has been added. It is respectfully submitted that this Amendment is fully responsive to the Office Action dated June 16, 2006.

As to the Merits:

As to the merits of this case, the Examiner relies on the newly cited reference of Wischnewskiy (USP 6,979,934) in setting forth the following new rejection:

claims 1 and 3 stand rejected under 35 USC 103(a) as being unpatentable over Zhu et al. (U.S. Publication No. 2003/0198064, of record) in view of Wischnewskiy and Weil.

This rejection is respectfully traversed.

Claim 1, as amended, now calls for *an LC resonant circuit is provided between the winding wire for the high-voltage side and the switching section for the higher voltage side, thereby waveforms of currents flowing on the winding wires of the low and high voltage side are changed into sinusoidal waveforms and Off timing of each switching element is set in the vicinity of a zero crossing point of a current value.*

Response

Application No. 10/781,699

Attorney Docket No. 042115

The Examiner properly acknowledges in page 3, lines 8-10 that “Zhu et al, however, does not disclose an LC resonant circuit provided between the winding wire for the high-voltage side and the switching section for the higher voltage side.”

In order to overcome the above-noted drawbacks and deficiencies of Zhu, the Examiner relies on the secondary reference of Wischnewskiy and asserts in page 3, lines 10-12 that “Wischnewskiy teaches that an LC resonant circuit (57) may be provided between the winding wire for the high-voltage side and the switching section for the higher voltage side,” and directs applicants’ attention to Fig. 12 of Wischnewskiy.

However, it is submitted that while Wischnewskiy may disclose in col. 10, lines 2-6 that, “[t]he cited summing element of transformer 56 and an L-C serial element as filter 57 are looped into the diagonals of bridge power amplifier 41, or in other words at outputs 48 and 53,” Wischnewskiy fails to disclose or fairly suggest that the filter 57 (L-C serial element) constitutes an LC resonant circuit, and/or that the filter 57 (L-C serial element) in which *waveforms of currents flowing on the winding wires of the low and high voltage side are changed into sinusoidal waveforms and Off timing of each switching element are set in the vicinity of a zero crossing point of a current value*, as now called for in claim 1.

Response

Application No. 10/781,699

Attorney Docket No. 042115

Instead, as shown in Fig. 13 of Wischnewskiy, the voltage variations V1 and V2 shown in diagrams 59, 62 and 65 and diagrams 60, 63 and 66 that occur at outputs 48 and 53 of bridge power amplifiers 45 and 50, respectively, clearly do not have *sinusoidal waveforms*. That is, Wischnewskiy relates to a piezoelectric motor in which the LC resonant circuit functions as an element of an oscillator for driving a piezoelectric element.

With regard to the additional secondary reference of Weil, the Examiner asserts on page 3 of the Action that:

Weil (3,893,015) discloses that the use of an LC resonant circuit for generating currents with sinusoidal waveforms across both windings is well known in the art. Its LC circuits comprising inductors 16 and 18 and capacitors 24 and 25 provide sinusoidal waveform across capacitor 25 is fed to the primary winding of the transformer 31 and inherently to the secondary winding while providing stable operation from zero to full load. See column 6, lines 35-68.

However, it is respectfully submitted that neither of the LC circuits of Weil are *provided between the winding wire for the high-voltage side and the switching section for the higher voltage side*.

As such, it is submitted that, even if, Zhu, Wischnewskiy and Weil are combined in the manner suggest by the Examiner, such combination would still fail to disclose or fairly suggest the features of claim 1 concerning *an LC resonant circuit is provided between the winding wire for the high-voltage side and the switching section for the higher voltage side, thereby*

Response
Application No. 10/781,699
Attorney Docket No. 042115

waveforms of currents flowing on the winding wires of the low and high voltage side are changed into sinusoidal waveforms and Off timing of each switching element is set in the vicinity of a zero crossing point of a current value.

Moreover, it is respectfully submitted that the Examiner has failed to provide adequate motivation for combining the teachings of Zhu with that of Wischnewski and Weil.

That is, the Examiner asserts on page 3, lines 18-22 of the Action that:

Thus, it would have been obvious to one having ordinary skill in the art to employ an LC resonant circuit of Wischnewski and Weil in the converter of Zhu et al to obtain the claimed invention, for the purpose of decreasing transformer leakage inductance and to decrease switching losses while providing stable operation.

However, it is submitted that the Examiner's assertion of employing an LC resonant circuit of Wischnewski and Weil in the converter of Zhu would not have a reasonable expectation of success, since the LC resonant circuits of Wischnewski and Weil are completely different from one another. In other words, one of ordinary skill in the art would not be able to employ both the LC resonant circuit of Wischnewski and the LC resonant circuit of Weil in the converter of Zhu. Moreover, the Examiner has failed to provide adequate motivation as to why one of ordinary skill in the art would be motivated to include both the LC resonant circuit of Wischnewski and the LC resonant circuit of Weil in the converter of Zhu.

Response
Application No. 10/781,699
Attorney Docket No. 042115

Furthermore, it is submitted that the voltage variations V1 and V2 shown in diagrams 59, 62 and 65 and diagrams 60, 63 and 66 of Fig. 13 of Wischnewskiy clearly teaches away from having sinusoidal waveforms of current flowing on the winding wire of the low and high voltage sides.

Finally, it is submitted that the disclosure of Wischnewskiy regarding a piezoelectric driver is non-analogous to the disclosure of either Weil or Zhu.

As such, it is respectfully submitted that the Examiner has failed to establish a *prima facie* case of obviousness with regard to the features of claim 1.

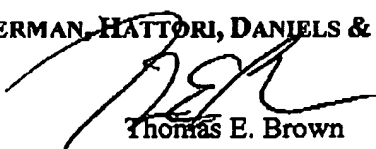
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

Response
Application No. 10/781,699
Attorney Docket No. 042115

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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